

REMARKS

Claim 6 is rejected under 35 U.S.C. §112, first paragraph, due to a typographical error in the chemical formula for antimony oxide. Claim 6 has been amended to correct this error and has also been amended to be presented in independent form. Claim 6 is believed to comply with the description requirement.

Claims 1 and 5 stand rejected under 35 U.S.C. §102(b) for anticipation by U.S. Patent No. 5,316,854 to Lin as evidenced by U.S. Patent No. 4,373,060 to Ching. Applicants respectfully traverse this rejection for the following reasons.

Claim 1 is directed to a sol containing composite oxide particulates of silica and another oxide, where the surface of the particulates is modified by a silane compound.

The Examiner relies upon Example VI of Lin which reports the combination of Ludox LS acetic acid and γ -glycidolpropyl trimethoxysilane. (The Examiner relies upon the Ching patent for disclosing that Ludox LS has a low sodium content which would assertedly read on the weight ratio of silica to another inorganic oxide (Na₂O) as in claim 1.) Example VI of Lin is reproduced as follows:

A combination of 25 grams LUDOX LS (DuPont), an aqueous dispersion of colloidal silica sol containing 30 weight percent of silica and 2 grams of acetic acid was mixed and stirred at room temperature. Thirty-five grams of γ -glycidolpropyl trimethoxysilane (A-187) was slowly added and stirred for one-half hour. Sixty-five grams of an aqueous dispersion of 20 weight percent of colloidal cerium oxide was slowly added and the mixture stirred at room temperature overnight. A combination of 30 grams of methyl alcohol and 0.1 gram of fluorinated surfactant (DuPont FSN) was combined with the previous mixture and stirred at room temperature. Quartz plates were immersed in the resulting mixture and removed at a rate to develop a coating having a thickness in the 1.6 to 2.1 micron range and an absorbance of 2.8 which is estimated to correspond to an absorbance of about 1.5 per 1.0 micron of thickness at a wavelength of 320 nanometers. Some of the coated quartz plates were heated to 550°C, and others to 1100°C. Plates treated by heating to either

temperature had excellent reheat craze resistance after cooling down to room temperature followed by heating to 1100°C. These coated plates also were capable of supporting multiple layers of coating without crazing. The resultant coatings had an analysis of 44.15% by weight (21.66 mole percent) of cerium oxide, 55.68 weight percent (78.33 mole percent) of silica.

The Ludox LS disclosed in Example VI of Lin is a silica sol, not a composite metal oxide sol. In the process described in Example VI, γ -glycidolpropyl trimethoxysilane is hydrolyzed by acetic acid to form a matrix of a coating composition. The Ludox LS is not modified by the silane. Similarly, although colloidal cerium oxide is added to the colloidal silica, the cerium oxide is not combined with the silica to produce a composite oxide particulate as in the present invention, nor can this occur according to the conditions reported in the Lin patent. While a coating composition is prepared according to the Lin patent, the modification of composite oxide particles is not taught or suggested

Moreover, the relative amount of γ -glycidolpropyl trimethoxysilane used in Example VI of Lin is significantly greater than that in the present invention. As reported in Example I of the present application, only 8.4 grams of the silane are added to 300 grams of a silica alumina sol containing 90 grams of the silica and alumina. In contrast, Example VI reports using 35 grams of the silane in combination with only 25 grams of the colloidal silica sol of Ludox LS. Applicants appreciate that the present invention is directed to the compound sol itself and not to the process of preparing the same. However, this difference in the preparation of the sol of the present invention and the compositions of the prior art is evidence of the distinctions therebetween.

To the extent that the Ching patent discloses that Ludox LS is a colloidal silica, this does not provide evidence that the Lin patent discloses the composite oxide particles required by claim 1. Neither of the cited references teach or suggest, alone or in combination, silica-containing composite oxides produced by simultaneously adding an alkali metal silicate and an alkali soluble inorganic oxide to

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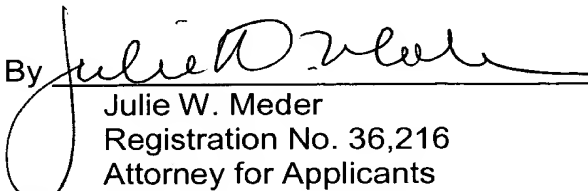
an alkali aqueous solution. In addition, the weight ratio of silica to an inorganic oxide other than silica is not disclosed in either of these references. Even if the Ching patent discloses a ratio of sodium oxide to silica, that ratio is not of the components in a composite oxide particle and thus is not applicable to the present invention. Accordingly, claims 1 and 5 define over the Lin and Ching patents.

Claims 1, 5 and 6 stand rejected under 35 U.S.C. §102(f) over U.S. Patent No. 6,680,040 to Nishida et al. for asserted failure of the Applicants to invent the claimed subject matter. Claims 1, 5 and 6 are also rejected under the judicially created doctrine of obviousness-type double patenting over claims 6 and 12 of the Nishida patent. The Nishida reference discloses subject matter that was derived from at least one applicant of the present invention. The Nishida patent has a priority date 18 months later than the priority date of the present application. This is significant evidence that the subject matter of the Nishida patent was derived from the Applicants. MPEP 2137. While a Terminal Disclaimer is submitted herewith to overcome the obviousness-type double patenting, to the extent that an affidavit regarding the inventorship of the respective Nishida patent and the present application is still required by the Examiner, the Examiner is requested to contact the undersigned for submission thereof.

In view of the foregoing, claims 1, 5 and 6 are believed to define over the prior art of record and be in condition for allowance.

Respectfully submitted,

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